

**AMENDMENTS TO THE SPECIFICATION:**

Please amend the specification as follows:

***Paragraph beginning on page 1, line 22 to page 2, line 9:***

Semiconductor circuit elements have been miniaturized in accordance with the K-factor (scaling factor) rule. The technique that led the miniaturization overcame engineering problems and dimensions (processing accuracy, processing method, establishment of techniques for eliminating various contaminant defects control of chemical reactions and the like) rather than problems of physical principles (semiconductor operation principle and the like), and did not need change of physical concepts themselves (scaling rule, semiconductor band theory, transistor operation ~~principle~~ principle and the like).

***Paragraph beginning on page 1, line 22 to page 2, line 9:***

Fig.5 is a structural view showing an example of the embodiment of this invention in which an A/D converter is constructed by an AB (Aharonov-Bohm) effect element using a fine vacuum tube. In Fig. 5, 7 represents cathodes arranged in a vacuum. 8 represents anodes. Between these cathodes 7 and ~~cathodes~~ anodes 8, splitting units (slits) 9 for bisecting a flow of electrons emitted from the cathode 7 are arranged. Magnetic field generating units 10 are arranged between the splitting units 9 and the ~~cathodes~~ anodes 8. This magnetic field generating units 10 are formed in such a manner that the ratio of the intensity of their magnetic fields based on an input current is 1:2:4:8.